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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/493,795B

DATE: 03/19/2003

TIME: 12:33:54

Input Set : A:\179A-sl3.txt

Output Set: N:\CRF4\03192003\I493795B.raw

3 <110> APPLICANT: Watkins, Maren
4 Olivera, Baldomero M.
5 Hillyard, David R.
6 McIntosh, J. Michael
7 Jones, Robert M.
9 <120> TITLE OF INVENTION: Alpha-Conotoxin Peptides
11 <130> FILE REFERENCE: 2314-179.A
13 <140> CURRENT APPLICATION NUMBER: US 09/493,795B
14 <141> CURRENT FILING DATE: 2000-01-28
16 <150> PRIOR APPLICATION NUMBER: US 60/118,381
17 <151> PRIOR FILING DATE: 1999-01-29
19 <160> NUMBER OF SEQ ID NOS: 404
21 <170> SOFTWARE: PatentIn Ver. 2.0
23 <210> SEQ ID NO: 1
24 <211> LENGTH: 17
25 <212> TYPE: PRT
26 <213> ORGANISM: Artificial Sequence
28 <220> FEATURE:
29 <223> OTHER INFORMATION: Description of Artificial Sequence:Alpha-Conotoxin
30 Peptide Generic Formula I
32 <220> FEATURE:
33 <221> NAME/KEY: SITE
34 <222> LOCATION: (1)..(3)
35 <223> OTHER INFORMATION: Xaa at residue 1 is des-Xaa, Ile, Leu or Val; Xaa
36 at residue 2 is des-Xaa, Ala or Gly; Xaa at
37 residue 3 is des-Xaa, Gly, Trp (D or L), neo-Trp,
38 halo-Trp or any unnatural aromatic amino acid.
40 <220> FEATURE:
41 <221> NAME/KEY: SITE
42 <222> LOCATION: (4)..(5)
43 <223> OTHER INFORMATION: N-methyl-Lys, Xaa at residue 4 is des-Xaa, Gly,
44 Trp (D or L), neo-Trp, halo-Trp or any unnatural
45 aromatic amino acid; Xaa at residue 5 is Glu,
46 gamma-carboxy-Glu (Gla), Asp, Ala, Thr, Ser, Gly,
48 <220> FEATURE:
49 <221> NAME/KEY: SITE
50 <222> LOCATION: (5)..(8)
51 <223> OTHER INFORMATION: Ile, Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,
52 O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any
53 unnatural hydroxy containing amino acid; Xaa at
54 residue 8 is Ser, Thr, Arg, ornithine,
56 <220> FEATURE:
57 <221> NAME/KEY: SITE

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58 <222> LOCATION: (8)..(9)

59 <223> OTHER INFORMATION: homoarginine, Lys, N,N-dimethyl-Lys, N,N,N-trimethyl-Lys or any unnatural basic amino acid;

60 Xaa at residue 9 is Asp, Glu, Gla, Arg, ornithine,

61 homoarginine, Lys, N-methyl-Lys, N,N-dimethyl-

62

64 <220> FEATURE:

65 <221> NAME/KEY: SITE

66 <222> LOCATION: (9)..(10)

67 <223> OTHER INFORMATION: Lys, N,N,N-trimethyl-Lys or any unnatural basic amino acid; Xaa at residue 10 is Ser, Thr, Asn,

68 Ala, Gly, Arg, Lys, ornithine, homoarginine,

69 N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-trimethyl-

70

72 <220> FEATURE:

73 <221> NAME/KEY: SITE

74 <222> LOCATION: (10)..(11)

75 <223> OTHER INFORMATION: Lys, any unnatural basic amino acid, His, halo-His, Pro or hydroxy-Pro; Xaa at residue 11 is

76 Thr, Ser, Ala, Asp, Asn, Pro, hydroxy-Pro, Arg,

77 ornithine, homoarginine, Lys, N-methyl-Lys,

78

80 <220> FEATURE:

81 <221> NAME/KEY: SITE

82 <222> LOCATION: (11)..(13)

83 <223> OTHER INFORMATION: N,N-dimethyl-Lys, N,N,N-trimethyl-Lys or any unnatural basic amino acid; Xaa at residue 13 is

84 Gly, Ser, Thr, Ala, Asn, Arg, ornithine,

85 homoarginine, Lys, N-methyl-Lys,

86

88 <220> FEATURE:

89 <221> NAME/KEY: SITE

90 <222> LOCATION: (13)..(14)

91 <223> OTHER INFORMATION: N,N-dimethyl-Lys, N,N,N-trimethyl-Lys or any unnatural basic amino acid; Xaa at residue 14 is

92 Gln, Leu, His, halo-His, Trp (D or L), halo-Trp,

93 neo-Trp, Tyr, nor-Tyr, mono-halo-Tyr, di-halo-

94

96 <220> FEATURE:

97 <221> NAME/KEY: SITE

98 <222> LOCATION: (14)

99 <223> OTHER INFORMATION: Tyr, O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr, Arg, ornithine, homoarginine, Lys, N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-trimethyl-Lys, any unnatural basic amino acid or any unnatural aromatic amino

100

101

102

104 <220> FEATURE:

105 <221> NAME/KEY: SITE

106 <222> LOCATION: (14)..(15)

107 <223> OTHER INFORMATION: acid; Xaa at residue 15 is Asn, His, halo-His, Ile, Leu, Val, Gln, Arg, ornithine, homoarginine,

108 Lys, N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-trimethyl-Lys or any unnatural basic amino acid;

109

110

112 <220> FEATURE:

113 <221> NAME/KEY: SITE

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Input Set : A:\179A-sl3.txt

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114 <222> LOCATION: (17)

115 <223> OTHER INFORMATION: Xaa at residue 17 is des-Xaa, Val, Ile, Leu, Arg,

116 ornithine, homoarginine, Lys, N-methyl-Lys, N,N-

117 dimethyl-Lys, N,N,N-trimethyl-Lys or any

118 unnatural basic amino acid.

120 <400> SEQUENCE: 1

W--> 121 Xaa Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Cys

122 1 5 10 15

124 Xaa

128 <210> SEQ ID NO: 2

129 <211> LENGTH: 21

130 <212> TYPE: PRT

131 <213> ORGANISM: Artificial Sequence

133 <220> FEATURE:

134 <223> OTHER INFORMATION: Description of Artificial Sequence:Alpha-Conotoxin

135 Peptide Generic Formula II.

137 <220> FEATURE:

138 <221> NAME/KEY: SITE

139 <222> LOCATION: (1)..(3)

140 <223> OTHER INFORMATION: Xaa at residue 1 is des-Xaa, Asp, Glu or gamma-

141 carboxy-Glu (Gla); Xaa at residue 2 is des-Xaa,

142 Gln, Ala, Asp, Glu, Gla; Xaa at residue 3 is des-

143 Xaa, Gly, Ala, Asp, Glu, Gla, Pro or hydroxy-Pro.

145 <220> FEATURE:

146 <221> NAME/KEY: SITE

147 <222> LOCATION: (4)..(7)

148 <223> OTHER INFORMATION: Xaa at residue 4 is des-Xaa, Gly, Glu, Gla, Gln,

149 Asp, Asn, Pro or hydroxy-Pro; Xaa at residue 7 is

150 Ser, Thr, Gly, Glu, Gla, Asn, Trp (D or L),

151 neo-Trp, halo-Trp, Arg, ornithine, homoarginine,

153 <220> FEATURE:

154 <221> NAME/KEY: SITE

155 <222> LOCATION: (7)

156 <223> OTHER INFORMATION: Lys, N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-

157 trimethyl-Lys, any unnatural basic amino acid,

158 Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,

159 O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any

161 <220> FEATURE:

162 <221> NAME/KEY: SITE

163 <222> LOCATION: (7)..(8)

164 <223> OTHER INFORMATION: unnatural hydroxy containing amino acid; Xaa at

165 residue 8 is Asp, Asn, His, halo-His, Thr, Ser,

166 Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,

167 O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any

169 <220> FEATURE:

170 <221> NAME/KEY: SITE

171 <222> LOCATION: (8)..(10)

172 <223> OTHER INFORMATION: unnatural hydroxy containing amino acid; Xaa at

173 residue 9 is Pro or hydroxy-Pro; Xaa at residue

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Input Set : A:\179A-s13.txt

Output Set: N:\CRF4\03192003\I493795B.raw

174 10 is Ala, Ser, Thr, Asp, Val, Ile, Pro, hydroxy-
 175 Pro, Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,
 177 <220> FEATURE:
 178 <221> NAME/KEY: SITE
 179 <222> LOCATION: (10)..(12)
 180 <223> OTHER INFORMATION: O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any
 181 unnatural hydroxy containing amino acid; Xaa at
 182 residue 12 is Gly, Ile, Leu, Val, Ala, Thr, Ser,
 183 Pro, hydroxy-Pro, Phe, Trp (D or L), neo-Trp,
 185 <220> FEATURE:
 186 <221> NAME/KEY: SITE
 187 <222> LOCATION: (12)..(13)
 188 <223> OTHER INFORMATION: halo-Trp, Arg, ornithine, homoarginine, Lys, N-
 189 methyl-Lys, N,N-dimethyl-Lys, N,N,N-trimethyl-
 190 Lys, any unnatural basic amino acid or any
 191 unnatural aromatic amino acid; Xaa at residue 13
 193 <220> FEATURE:
 194 <221> NAME/KEY: SITE
 195 <222> LOCATION: (13)
 196 <223> OTHER INFORMATION: is Ala, Asn, Phe, Pro, hydroxy-Pro, Glu, Gla,
 197 Gln, His, halo-His, Val, Ser, Thr, Arg,
 198 ornithine, homoarginine, Lys, N-methyl-Lys, N,N-
 199 dimethyl-Lys, N,N,N-trimethyl-Lys or any
 201 <220> FEATURE:
 202 <221> NAME/KEY: SITE
 203 <222> LOCATION: (13)..(14)
 204 <223> OTHER INFORMATION: unnatural basic amino acid; Xaa at residue 14 is
 205 Thr, Ser, His, halo-His, Leu, Ile, Val, Asn, Met,
 206 Pro, hydroxy-Pro, Arg, ornithine, homoarginine,
 207 Lys, N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-
 209 <220> FEATURE:
 210 <221> NAME/KEY: SITE
 211 <222> LOCATION: (14)..(15)
 212 <223> OTHER INFORMATION: trimethyl-Lys, any unnatural basic amino acid,
 213 Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr,
 214 O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any
 215 unnatural hydroxy containing amino acid; Xaa at
 217 <220> FEATURE:
 218 <221> NAME/KEY: SITE
 219 <222> LOCATION: (15)
 220 <223> OTHER INFORMATION: residue 15 is Asn, Pro, hydroxy-Pro, Gln, Ser,
 221 Thr, Arg, ornithine, homoarginine, Lys, N-methyl-
 222 Lys, N,N-dimethyl-Lys, N,N,N-trimethyl-Lys, any
 223 unnatural basic amino acid, Tyr, nor-Tyr, mono-
 225 <220> FEATURE:
 226 <221> NAME/KEY: SITE
 227 <222> LOCATION: (15)..(16)
 228 <223> OTHER INFORMATION: halo-Tyr, di-halo-Tyr, O-sulpho-Tyr, O-phospho-
 229 Tyr, nitro-Tyr or any unnatural hydroxy contain-

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230      ing amino acid; Xaa at residue 16 is des-Xaa,
231      Gly, Thr, Ser, Pro, hydroxy-Pro, Tyr, nor-Tyr,
232 <220> FEATURE:
233 <221> NAME/KEY: SITE
234 <222> LOCATION: (16)..(17)
235 <223> OTHER INFORMATION: mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr,
236      O-phospho-Tyr, nitro-Tyr or any unnatural hydroxy
237      containing amino acid; Xaa at residue 17 is des-
238      Xaa, Ile, Val, Asp, Leu, Phe, Arg, ornithine,
239 <220> FEATURE:
240 <221> NAME/KEY: SITE
241 <222> LOCATION: (17)
242 <223> OTHER INFORMATION: homoarginine, Lys, N-methyl-Lys, N,N-dimethyl-
243      Lys, N,N,N-trimethyl-Lys, any unnatural basic
244      amino acid, Tyr, nor-Tyr, mono-halo-Tyr, di-halo-
245      Tyr, O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or
246 <220> FEATURE:
247 <221> NAME/KEY: SITE
248 <222> LOCATION: (17)..(19)
249 <223> OTHER INFORMATION: any unnatural hydroxy containing amino acid; Xaa
250      at residue 19 is des-Xaa, Gly, Ala, Met, Ser,
251      Thr, Trp (D or L), neo-Trp, halo-Trp, any
252      unnatural aromatic amino acid, Arg, ornithine,
253 <220> FEATURE:
254 <221> NAME/KEY: SITE
255 <222> LOCATION: (19)..(20)
256 <223> OTHER INFORMATION: homoarginine, Lys, N-methyl-Lys, N,N-dimethyl-
257      Lys, N,N,N-trimethyl-Lys or any unnatural basic
258      amino acid; Xaa at residue 20 is des-Xaa, Trp
259      (D or L), neo-Trp, halo-Trp, any unnatural
260 <220> FEATURE:
261 <221> NAME/KEY: SITE
262 <222> LOCATION: (20)..(21)
263 <223> OTHER INFORMATION: aromatic amino acid, Arg, ornithine, homo-
264      arginine, Lys, N-methyl-Lys, N,N-dimethyl-Lys,
265      N,N,N-trimethyl-Lys or any unnatural basic amino
266      acid; Xaa at residue 21 is des-Xaa, Arg,
267 <220> FEATURE:
268 <221> NAME/KEY: SITE
269 <222> LOCATION: (21)
270 <223> OTHER INFORMATION: ornithine, homoarginine, Lys, N-methyl-Lys,
271      N,N-dimethyl-Lys, N,N,N-trimethyl-Lys or any
272      unnatural basic amino acid.
273 <400> SEQUENCE: 2
W--> 281 Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa
282      1          5          10          15
283 Xaa Cys Xaa Xaa Xaa
284      20
285 <210> SEQ ID NO: 3

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RAW SEQUENCE LISTING ERROR SUMMARY
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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 1, 2, 3, 4, 5, 8, 9, 10, 11, 13, 14, 15, 17
 Seq#:2; Xaa Pos. 1, 2, 3, 4, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 19, 20, 21
 Seq#:3; Xaa Pos. 1, 2, 3, 4, 5, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26
 Seq#:3; Xaa Pos. 27, 28
 Seq#:4; Xaa Pos. 2, 11
 Seq#:5; Xaa Pos. 10
 Seq#:7; Xaa Pos. 2
 Seq#:8; Xaa Pos. 2, 7, 8
 Seq#:9; Xaa Pos. 6, 10
 Seq#:10; Xaa Pos. 7, 11
 Seq#:11; Xaa Pos. 3, 9, 10, 15
 Seq#:12; Xaa Pos. 6, 9
 Seq#:13; Xaa Pos. 5, 8, 11
 Seq#:14; Xaa Pos. 3, 5
 Seq#:15; Xaa Pos. 4, 6, 12
 Seq#:16; Xaa Pos. 2, 7, 11
 Seq#:17; Xaa Pos. 2, 8, 12
 Seq#:18; Xaa Pos. 1, 2, 7, 11
 Seq#:19; Xaa Pos. 2, 6, 8, 11, 13
 Seq#:20; Xaa Pos. 6, 7, 12
 Seq#:21; Xaa Pos. 6
 Seq#:22; Xaa Pos. 6, 11
 Seq#:23; Xaa Pos. 6, 14, 15
 Seq#:24; Xaa Pos. 1, 7, 14, 15
 Seq#:25; Xaa Pos. 1, 2, 7, 14, 15
 Seq#:26; Xaa Pos. 1, 7, 14, 15
 Seq#:27; Xaa Pos. 1, 7, 14, 15
 Seq#:28; Xaa Pos. 1, 7, 14
 Seq#:29; Xaa Pos. 1, 7, 14, 15
 Seq#:30; Xaa Pos. 1, 7, 14, 15
 Seq#:31; Xaa Pos. 1, 7, 14, 15
 Seq#:32; Xaa Pos. 1, 7, 14, 15
 Seq#:33; Xaa Pos. 7, 14, 15
 Seq#:34; Xaa Pos. 6, 13, 14
 Seq#:35; Xaa Pos. 6, 13, 14
 Seq#:36; Xaa Pos. 6, 11, 14, 15, 18
 Seq#:37; Xaa Pos. 1, 6, 13, 14
 Seq#:38; Xaa Pos. 6, 13, 14
 Seq#:39; Xaa Pos. 6, 7, 13, 15
 Seq#:40; Xaa Pos. 6, 7, 13, 15
 Seq#:41; Xaa Pos. 6, 7, 11, 13
 Seq#:42; Xaa Pos. 6, 7, 13
 Seq#:43; Xaa Pos. 6, 13
 Seq#:44; Xaa Pos. 6, 13

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Seq#:45; Xaa Pos. 6,11,13,14
Seq#:46; Xaa Pos. 7,11,12,14,15
Seq#:47; Xaa Pos. 1,2,7,14,15
Seq#:48; Xaa Pos. 1,7,14,15
Seq#:49; Xaa Pos. 1,7,14,15
Seq#:50; Xaa Pos. 6,7,13
Seq#:51; Xaa Pos. 1,14,15